

Intro to Probability – Notes Part 2 – The Fundamental Counting Principle

1. Find the total number of outcomes when a coin is tossed and a number cube is rolled.

Coin Toss Outcomes	Number Cube Outcomes	Sample Space	Number of Possible Combinations

2. For an outfit, Joan can choose from 3 pants, 2 blouses, and 2 pairs of shoes. How many different combinations of outfits can Joan make?

Pants	Blouses	Shoes	Sample Space	Number of Possible Combinations

3. For a meal you get a main dish, a side dish, and a dessert. You have a choice of steak, fish or chicken for the main dish, rice, pasta, or potato for the side dish, and pie, ice cream or cake for dessert.

Pants	Blouses	Shoes	Sample Space	Number of Possible Combinations

4. Come up with a hypothesis based on these three examples. If you have a choice of 3 drinks and 5 snacks, how many different combinations of drinks and snacks will there be? (Don't draw out the sample space!)

_____ combinations

The Fundamental Counting Principle

Sometimes there are too many possible outcomes to make a tree diagram or a list.

The _____ is one method to finding the number of possible outcomes

Fundamental Counting Principle

If there are m ways to choose a first item and n ways to choose a second item after the first item has been chosen, then there are $m \cdot n$ ways to choose both items.

Example 1: Using the Fundamental Counting Principle

A florist is arranging centerpieces that include 1 flower, 1 plant, and 1 vase. The florist has 2 kinds of vases, 2 kinds of plants, and 3 kinds of flowers to choose from. How many different centerpieces are possible?

Method 1: Use a tree diagram

Method 2: Use the Fundamental Counting Principle.

How can you "see" the Fundamental Counting Principle in a tree diagram? _____

You Try 1!

A voicemail system password is 1 letter followed by a 3-digit number less than 600. How many different voicemail passwords are possible?